Work Orde November-19-12				*93	408*						Page 1
Revision ID: Item Name:	647.1713 Spacer 11/19/12 12/07/12	Start Qty: 12.00 Req'd Qty: 12.00	*12* *12*	Accept	*N900 Cust Item I Customer:		100	* s	etup Start	ı VI -	S1* S2*
Approvals:			Date: \\\\ \\ - \\\ \\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	Tooling: SPC (Y/N):		ate:		R	kun Star Stop		R1* R2*
Sequence ID/ Work Center II)	Operation Description	<u> </u>	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty *	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revi	ision Nbr						•	,		
647.1700	N/C			•							•
*110 * 1 1 \(\hat{\text{*110}}\)* Hardinge Hardinge CNC Lathe	e Small	Memo Turn as per c	lwg	0.00	m/12/11/2	7		12		-	
120 *170* QC Quality Control	,	2-Deburr if r QC2- Inspect parts off ma	-	0.00	-fishila	2		12	B		
130 *130* QC		QC8- Inspect parts - seco	nd check	0.00	13 0 12/12/0	ol .		_12_	<u>_</u>	· · · · · · · · · · · · · · · · · · ·	08 08

Quality Control

											DQA:	Date:	
NCR:	/es	/ No				WORK ORDER NON-	100	NFORM	MANCE / UPDA	TE	•		
-											QA Closed:	Date:	
Work Orde	er:	•				DISPOSITION				AGAINST DE	PARTMENT/	PROCESS	
						Rework	٦		Skid-tube (Crosstube		Water Jet	Engineering
Part N	lo.					Scrap			 	Small Fab	Proc	I. Eng. Coor.	Quality
						Use-as-is			noforming	Finishing	Rec/Stor	e/Packaging	Other
NCR N	10.					Work Order Update	J		Large Fab C	Composite		Supplier	
Root					Descri	iption of work order update	T	nitial	Action	······································	Sign &		
Cause		Date	Step	Qty		or Non-conformance		ief Eng	Descripti		Date	Verification	QC Inspector
oc/Data									·				·
quip/Tooling													
perator							1						
//aterial	_												
etup					i								
Other											,		
rocess							1	:					
upplier													
raining													
Inapproved								en area :					
						F	AUL	T CATE	GORY				
Landi	ng (ear				General							
	-	Bending				Bend		Grain			Ovalized		Pressure/Forced
		Centre No	t Concer	ntric to (o/s	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
		Cracks				Broken/Damaged		Inspecti	on Incomplete		Part Incorred	t	Weld
ļ		Crushed/C	Crimped,		L	Burrs		Instruct	ions Incomplete/Uncl	lear	Part Lost/Mi	ssing	Wrong Stock Pulled
	╝	Cuffs			L_	Contamination		Mainte	nance		Part Moved		
		Heat Treat	t		L	Countersink		Mislabe	led		Positioned W	/rong	
		Inspection	Strip in	Tube		Cut Too Short		Misread	I		Power Loss/S	Surge	Other
n		Ripples in	Bend			Drill Holes		Offset		 -			
81		Torque W	aves in E	xtrusion	٦ 🗀	Drawing		Out of 0	Calibration				
		Turning Se	equence			Finish		Out of S	equence				
		Wave/Twi	ist in Tub	e		Folio		Outside	Dimensions				

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Orde November-19-12				*93	408*						Page 2
Item ID: Revision ID:	647.1713			Accept	*N900	1 040	100)* s	etup Start	1.71	S1*
Item Name:	Spacer								Stop	*N	S2*
Start Date:	11/19/12	Start Qty: 12.00	*12*		Cust Iten	ı ID:					
Required Date:	12/07/12	Req'd Qty: 12.00	*12*		Customer	r :					
Reference:			.,						.		
Approvals:	Process Pla	an:	Date:	Tooling:		Date:		F	Run Star	171	R1*
	QC:		Date:	SPC (Y/N):		Date:			Stop	*N	R2*
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160		Outsource process-Anodi	ize per QSI017 4.1.10.1	0.00							
160 Outsource4 Outsource process -	Anodize	Memo ISSUE P∕O≱ HARD ANO	18445 dize, color black a	0.00 AS PER DWG.(SEE N	OTE 3)	O				12-12	2-/2
170		Receive & Inspect for Da	ımage & Mat'l Certs	0.00						1	
170 Packaging Packaging		Мето		0.00					174	12/2	/ <u>(</u> 2-
180		QC5- Inspect part comple	eteness to step on W/O	0.00 DA	9			10			
120 QC		Memo		0.00))J1						

Quality Control

												DQA:	Date:	
NCR:	⁄es	/ No				WORK	ORDER NON	-COI	VFORM	MANCE / UPI	DATE			7
····												QA Closed:	Date:	
Work Ord	er:					D	ISPOSITION				AGAINST DE	PARTMENT	/PROCESS	1
Part I						Work	Rework Scrap Use-as-is Order Update		Therm	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	4	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Well 1	10.					VVOIR	Order opdate			Large rab	Composite[_	3uppliei [
Root					Descr	•	rk order update	ı	Initial	Act		Sign &		
Cause		Date	Step	Qty		or Non-conf	ormance	Ct	ief Eng	Descr	ription	Date	Verification	QC Inspector
oc/Data quip/Tooling perator Material etup other rocess upplier raining														
								FAUL	T CATE	GORY	· .			
Landi	ng (1			_	_	eneral	,				_		_
	Bending Centre Not Concentric to O/S Cracks Crushed/Crimped. Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend			o/s	Bend BOM/Rout Broken/Da Burrs Contaminat Countersir Cut Too Sho	maged ion ik		i i	ion Incomplete ions Incomplete/Unance elled	Jnclear	Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ct ssing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other	
		Torque W		xtrusio	,	Drawing			1	Calibration		•		
		Turning Se	equence			Finish			4	Sequence				

Outside Dimensions

Wave/Twist in Tube

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Orden				*934	108*							Page 3
Item ID: Revision ID: Item Name:	647.1713 Spacer	**************************************		Accept	*N900	040	100)*	Setup	Start Stop	*N: *N!	S1*
Start Date: Required Date: Reference:	11/19/12	Start Qty: 12.00 Req'd Qty: 12.00	*12* *12*		Cust Item I Customer:	ID:					10.	
Approvals:		an:	Date:	Tooling: _ SPC (Y/N):		ate:				Start Stop	*N *N	R1* R2*
Sequence ID/ Work Center I	D	Operation Description		Set Up/ Run Hours 0.00	Tool ID	Tool#	Plan Code	Accep Qty	t Reje Qty		Reject Number	Insp. Stamp
100 SprayPaint Spray Painting			⁷ MIL-P-23377J TYPE1 Cl 4860-50 PRIMER BATC		(SEE NOTE 3)			13	Q.	<u> </u>	_ Ø	19-12-31
200 *200* QC Quality Control	•	QC14- Inspect Spray Pai	nt	0.00				_\a_				05 13·0
210 *210* Packaging		Identify as per dwg & Sto	ock Location: 1393	0.00					/J.) 3 /o.	1/9(12/

IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV

Packaging

NCR:	Yes	/ No				WO	RK ORDER NON-C		VFORM	MANCE / UP	PDATE		•		٥
													QA Closed:	Date	
Work Ord	er:						DISPOSITION	1					PARTMENT/	_	, –
Part I	No.	· · · · · · · · · · · · · · · · · · ·					Rework Scrap		1	Skid-tube Machining	Sm	sstube all Fab		Water Jet	Engineering Quality
NCR I	No.				·	,	Use-as-is Work Order Update			noforming Large Fab		nishing posite	Rec/Stor	e/Packaging Supplier	Other
Root					Desci	iption o	f work order update		nitial	Ad	ction		Sign &		
Cause		Date	Step	Qty		or Non-	-conformance	Ch	ief Eng	Desc	cription		Date	Verification	QC Inspector
oc/Data															
quip/Tooling															
perator										•					
Material															
etup															
ther															
rocess															
upplier															
raining															
inapproved															
							F/	AUL	T CATE	GORY			· · · · · · · · · · · · · · · · · · ·		
Landi	ng (ear					General								
		Bending				Bend			Grain				Ovalized		Pressure/Forced
		Centre No	t Concer	ntric to (o/s	ВОМ	'Route		Hardwa	re			Over/Under	tolerance	Temperature/Cure
		Cracks				Broke	n/Damaged		Inspecti	on Incomplete			Part Incorrec	t 🗆	Weld
		Crushed/C	Crimped.			Burrs			Instruct	ions Incomplete,	/Unclear		Part Lost/Mis	ssing	Wrong Stock Pulled
		Cuffs				Contai	mination		Mainte	nance			Part Moved		_
		Heat Treat	t			Count	ersink		Mislabe	led			Positioned W	/rong	
		Inspection	Strip in	Tube		Cut To	o Short		Misreac	1			Power Loss/S		Other
		Ripples in	Bend			Drill H	loles		Offset			<u> </u>	·		•
		Torque W	aves in E	xtrusion	,	Drawi	ng		Out of C	Calibration					
		Turning Se	equence		T	Finish	•		Out of S	equence					
		Wave/Twi	ist in Tub	e		Folio			1	Dimensions					

DQA:

Date:

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Ord November-19-1						-4		Page 4				
Item ID: 647.1713 Revision ID: Item Name: Spacer Start Date: 11/19/12				Accept	*N900	040	100)* s	_	Start Stop	*NS	\$1* \$2*
Start Date: Required Date Reference:		Start Qty: 12.00 Req'd Qty: 12.00	*12 *12		Cust Item II Customer:	D :						
Approvals:	Process Pl	an:	Date:	Tooling:	Da	te:	- 	F		Start Stop	*NF	?1 *
	QC:		Date:	SPC (Y/N):	Da	te:	. =			···r	*NF	? 2*
Sequence ID/ Work Center 1	ID	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reje Qty		3	Insp. Stamp
220		QC21- Final Inspection -	Work Order Release	0.00						21	1/15	\mathcal{A}
220 QC Quality Control		Memo		0.00					l	2/	1 /10 ; wi	() - -0\-0\

												DQA:	Date:	
NCR:	Yes	/ No					WORK ORDER NON-C	COI	NFORI	MANCE / UPDATE		·		•
-						_						QA Closed:	Date	
Nork Ord	er:						DISPOSITION			AGAIN	ST DE	PARTMENT	PROCESS	
							Rework	1		Skid-tube Crosstu	be	1	Water Jet	Engineering
Part	No.						Scrap			Machining Small F	-	Pro	d. Eng. Coor.	Quality
			,				Use-as-is	1		noforming Finishi	ng	4	e/Packaging	Other
NCR	No.						Work Order Update]		Large Fab Composi	te]	Supplier	
		,			·			,				<u>,</u>		
Root					Des		otion of work order update		nitial	Action		Sign &		
Cause	1	Date	Step	Qty		C	or Non-conformance	Ch	ief Eng	Description		Date	Verification	QC Inspector
oc/Data	-									۹.				
quip/Tooling perator	\vdash													
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Land	ing (1			r		General	_	1			7	_	-
		Bending			ļ		Bend	<u> </u>	Grain		 	Ovalized	_	Pressure/Forced
	<u> </u>	Centre No		ntric to (D/S		BOM/Route		Hardwa	· -	 	Over/Under	 	Temperature/Cure
	L	Cracks	.,				Broken/Damaged	<u> </u>	1	ion Incomplete	-	Part Incorre	}	Weld
	L	Crushed/0	Crimped.				Burrs	\vdash	ł	ions Incomplete/Unclear	<u> </u>	Part Lost/Mi	ssing	Wrong Stock Pulled
	-	Cuffs			}		Contamination	-	Mainte		-	Part Moved		
	—						Countersink	-	Mislabe		<u> </u>	Positioned V		اما
	-	1		rube	}		Cut Too Short Drill Holes	\vdash	Misread	1	L_	Power Loss/	Surge	Other
	-	Ripples in		vernois	. }		•	\vdash	Offset	Calibration				
	\vdash	Torque W		xtrusion	'		Drawing	\vdash	1	Calibration				
	1	Turning Se	equence		1		Finish	1	JOUT OF S	Sequence				

Outside Dimensions

Wave/Twist in Tube

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Picklist Print

November-19-12 10:01:27 AM

Work Order ID:

93408

Parent Item:

647.1713

Parent Item Name:

Spacer

Start Date: 11/19/12

Required Date: 12/07/12

Page 1

Start Qty: 12.00

Required Qty: 12.00

Comments:

IPP REV:A 12.10.04 NEW ISSUE DD VERF:JFS

Component Item ID/ Item Name	Replacement -Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6R1.250		Purchased	No				f	28.3600		0.2526316)		

6061-T6 Round Bar 1.250

 Location
 Loc Oty
 Loc Code

 MAT013
 28.36

 113457
 2.16

 → 113550
 14.2

 123483
 12

NCR:	Yes	/	No	

WORK ORDER NON-CONFORMANCE / UPDATE

DQA:	Date: _	•
QA Closed:	Date:	
PARTMENT/PR	OCESS	
	Nater Jet ng. Coor Packaging Supplier	Engineering Quality Other

r									· · · · · · · · · · · · · · · · · · ·		QA Closed:	Date	•
Work Orde	er:					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
						Rework	1		Skid-tube	Crosstube]	Water Jet	Engineering
Part N	lo.					Scrap	1	1	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
						Use-as-is		Thern	noforming	Finishing	Rec/Stor	re/Packaging	Other
NCR N	lo					Work Order Update	1		Large Fab	Composite		Supplier	1
	· · · · · · · · · · · · · · · · · · ·										_		<u> </u>
Root						ption of work order update	1	nitial	Act	tion	Sign &		
Cause	D.	ate	Step	Qty		or Non-conformance	Ch	ief Eng	Desci	ription	Date	Verification	QC Inspector
Doc/Data	_												_
Equip/Tooling	_											-	
Operator													
Material													
Setup	_												
Other													
Process						•							
Supplier		1											
Training	_												
Unapproved		l											
						 	AUL	T CATE	GORY				
Landin	g Gear					General		ì			-		_
	Ben	ding				Bend	Ш	Grain		<u></u>	Ovalized		Pressure/Forced
	Cent	re No	t Concer	tric to (o/s	BOM/Route	Ш	Hardwa	re		Over/Under	tolerance	Temperature/Cure
	Crac					Broken/Damaged	Ш	Inspect	ion Incomplete		Part Incorred	ct	Weld
	Crus	hed/C	rimped.		<u></u>	Burrs	Ш	Instruct	ions Incomplete/I	Unclear	Part Lost/Mi	issing	Wrong Stock Pulled
	Cuff	s				Contamination		Mainte	enance		Part Moved		
	Hea	t Treat	t			Countersink		Mislabe	eled		Positioned V	Vrong	
	Insp	ection	Strip in	Tube		Cut Too Short		Misread	t		Power Loss/	Surge	Other
	Ripp	les in	Bend			Drill Holes		Offset					
[Torque Waves in Extrusion				Drawing		Out of (Calibration					
	Turning Sequence			Finish	Out of Sequence								
	Wave/Twist in Tube					Folio	Outside Dimensions						

DART AEROSPACE LTD	Work Order:	93408
Description: SPACER	Part Number:	647,1713
Inspection Dwa:///2 /2 Ap Rev: 1//		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
.25	1010	.253			Vern	112-06
\$1.25	£010_	1.246			14	
Ø1.25 Ø.260	+ 005	B.212			1,	
					·	
					·	

Measured by:	onl	Audited by:	D.A.	0 00 0	Preliminary Approval:	
Date:	12/1/27	Date:	12/12/01	8-89	Date:	

1	Rev	Date	Change Revised by	Approved
- 1	1/61	Date	Offungo	1 1
-	ш	10.04.14	Added preliminary approval KJ	

\$ 10.04.15

1 •		
	ENGINEERING CHANGE NUTIC. NO. 02937	SHEET , OF 1
APICAL	DWG NO. 647.1700 REVINC PREPARED, JACKSON DATE	E: 07/14/10 EFFECT ON DWG
INDUSTRIES, INC.	DWG TITLE: SKID DEFLECTOR ASSY	Δ
TRANSACTION CODES (TC):	APPROVED BY: ENGRY BY ON MEG DEN BY ON MEG DEN BY	PER CURRENT ORDER
A-ADD C-CREATE R-REVISE D-DELETE	REASON: REVISED F/N 8 AND NOTE 3. ADDED INSPECTION DIME	NSIONS TO DRAWING VIEWS.
SHEET 1, ZONE AL I		
FINISH: HARD ANE PRETREAT PRC-DE RRIME IAW MIL-P	ZONE ; DIZE IAW MIL-A-8625 TYPE HI CLASS 2, COLOR BLACK; ESOTO PR-148 ADHESION PROMOTER, COLOR BLUE; -23377J TYPE I CLASS N	A1 IS:
	UNCONTA UNCONTA SITURE W. 93408 MC 12-1	-5 1-20
		7.85 REF
8 R 601.1622	1 SCREW	MS27039-1-14 /
F/N TC PART NUMBER	QTY DESCRIPTION	MATERIAL/SPECIFICATION
DDCUMENTS EFFECTED:	□ MDL □ INSTALL INSTRUC □ FMS □ ICA 図 BDM □ MAJOR 図 MINOR	DER REVIEW REQUIRED O YES 120 NO

• s.

NOTES:

MATERIAL: 7075-16 ALJMINUM PER AMS-QQ-A 253/12

MATERIAL: 6061-T6 ALUMINUM BAR IAW AMS-QQ-A-250/11

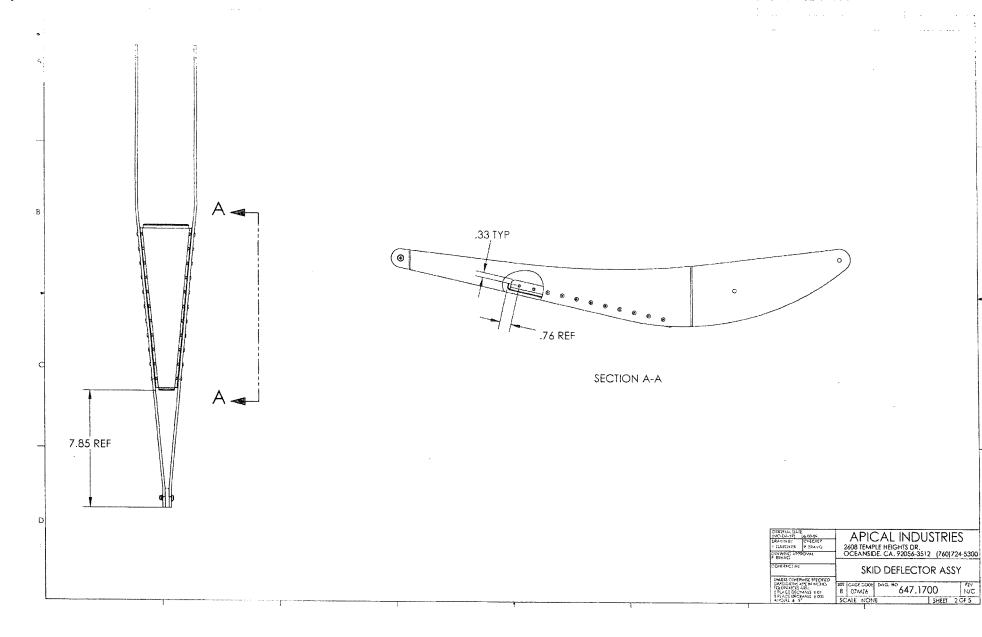
FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III CLASS 2, COLOR BLACK: CARDINAL 4860-50 PRETREATMENT PRIMER: PRIME IAW MIL-P-23377 J TYPE I CLASS N

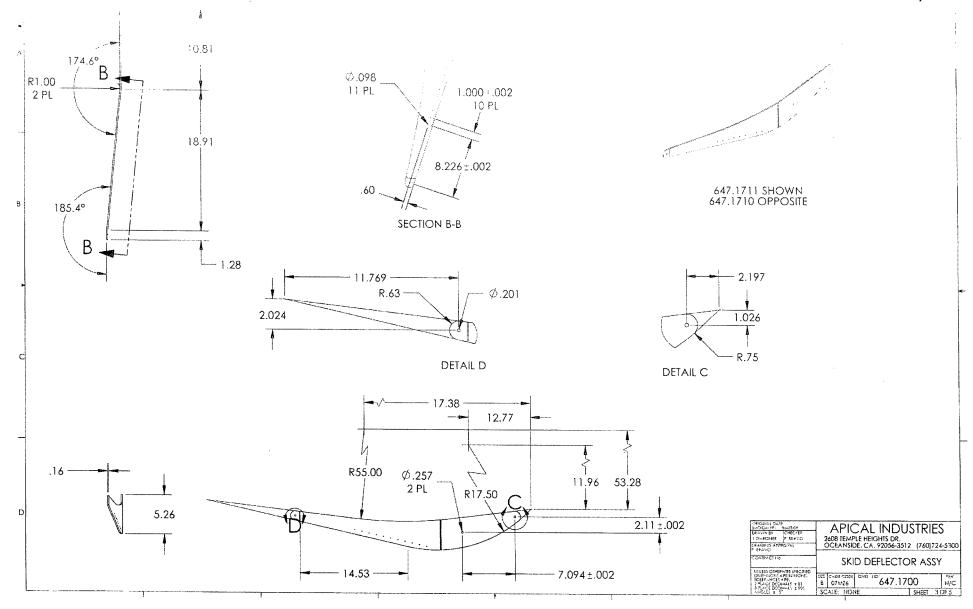
4. DEBURR AND BREAK ALL SHARP EDGES

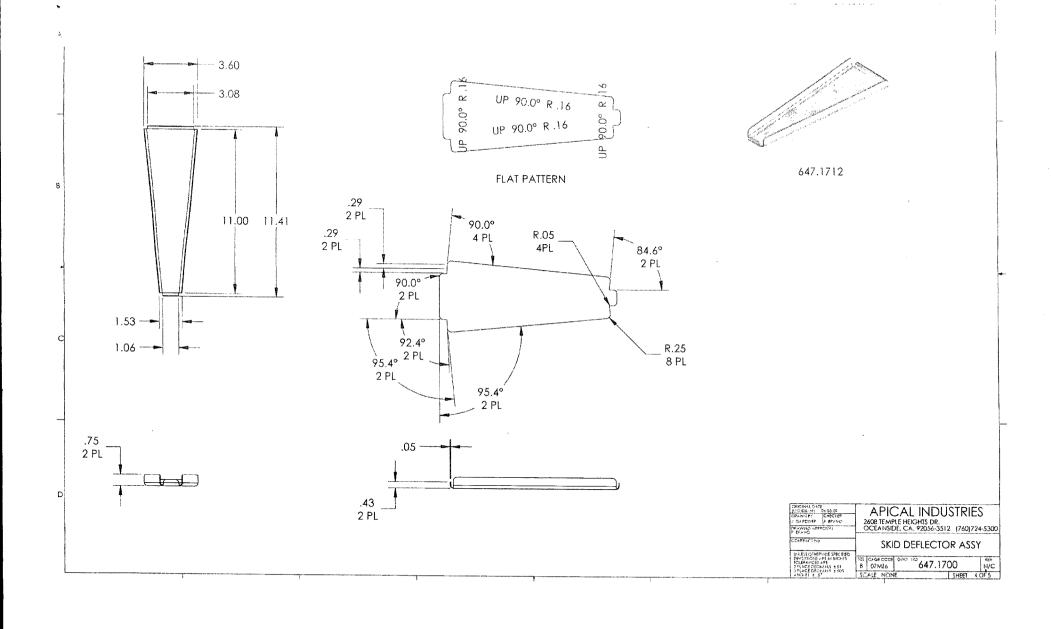
5. IDENTIFY IAW MPP-120 CLAMP F/N 1, 2, & 4; THEN MATE AND MATCH DRILL HOLES FROM F/N 1 & 2 ONTO F/N 3 AS SHOWN ON SHEET 2. √5) 22 PL

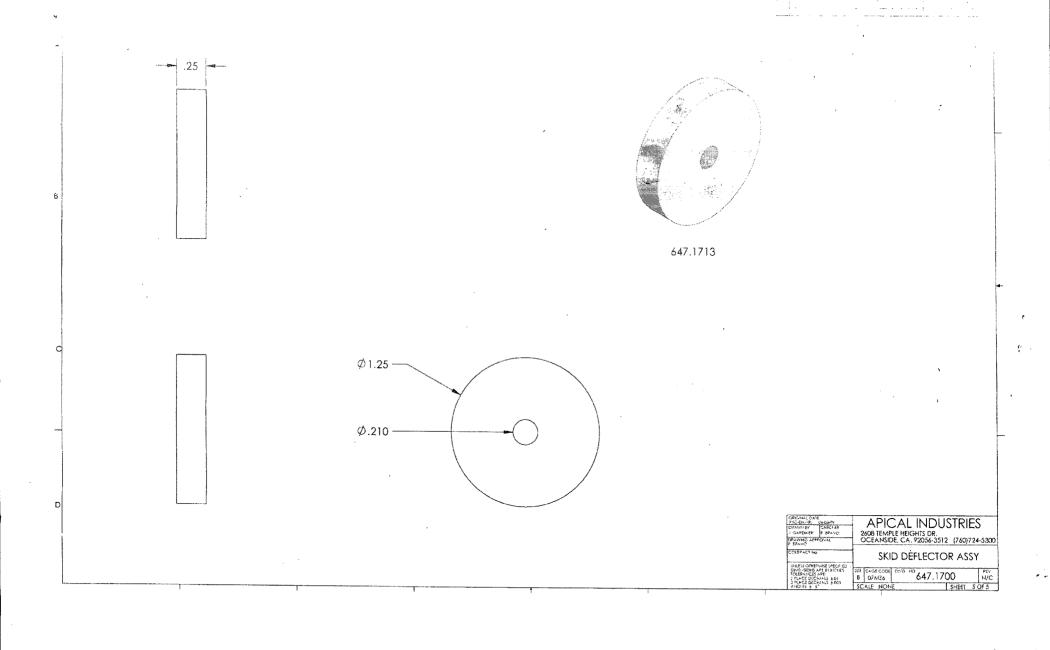
UNINCORPORATED ECN(s)

	1	8	601.2637	SCREW	MS37039-1-13			
	1	7	601.2943	LOCKNUT	MS21042-3	MS21043-3 NAS1149F0332P		
	2	6	601.1607	WASHER	NAS1149F0332P			
	22	5	601.1915	RIVET	CR3213-4-4			
	i	4	647.1713	SPACER	Δ.	Δ		
	1	3	647.1712	GUSSET	Δ	Δ		
	1	2	647,1711	PLATE		Δ		
	1	1	647.1710	PLATE		<i>A</i>		
	\times		647.1701	SKID DEFLECTOR AS	SY			
	.1701	FIND #	PART#	DESCRIPTION	MATL.	SPEC,		
QTY	······································	T		PARIS LIST		h		
NEXT ASSY [S]		2608 TEMPLE HI	L INDUSTR EIGHTS DR. A. 92056-3512 (760					
			OSTRA CTAR.	SKID D	EFLECTOR A	SSY		
			ROLESS COMERAINE SPECIA RELIGIOUS APE DA DACHE		1	I EEV		











A.T.G. Industries Inc. 731, rue Industrielle Rd. PLATING DEPARTMENT Rockland, On K4K 1T2 Canada

Ph: (613) 446-4544 Fax: (613) 446-4556

Pack List

Number: 62123

Date: 20-Dec-12

То

DART AEROSPACE LTD 1270 ABERDEEN ST. HAWKESBURY, ON K6A 1K7 Canada Ship To

DART AEROSPACE LTD 1270 ABERDEEN ST. HAWKESBURY, ON K6A 1K7

Canada

Ph: 613-632-5200

Fax: 613-632-1185

Ph: 613-632-5200

Fax: 613-632-1185

Terms		eh.	Ship Via
Tellis			All
Quantity		Description	
Quartity	╁	Part: ASST	Rev:
lo			
		30 PCS D4726-1	
		30 PCS D4703-043 18 PCS 647.1813	
-		10 PCS 646.3813 12 PCS 647.1713) 5 _M	
5	1		"
		HARD ANODIZE BLACK MIL-A-8625 TYPE III CLASS 2	
			PO: PO18645 Line:
		Certificate of Conforma	mance
,		A.T.G. Industries certifies that all items in this	his shipment are in conformance
		with all requirements, specifications and draw	awings referenced in the purchase order.
		ISO 9001 : 2008 REGISTE	TERED
		ATG SALES-2010 TERMS	MS APPLY
		DATE 20/13/12	1
		CERTIFIED SIGNATURE :	
		CERTIFIED SIGNATURE	
		RECEIVER SIGNATURE :	
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